REMARKS/ARGUMENTS

Amendments were made to the specification to correct errors and to clarify the specification. No new matter has been added by any of the amendments to the specification.

Claims 1-20 are pending in the present application. By this Response, claims 1-8 were canceled, claims 9, 10, 13, 14, 18, 20 are amended, and claim 21 is added. Reconsideration of the claims is respectfully requested.

While Applicant has cancelled claims 1-8 from further consideration in this application, Applicant is not conceding in this application that those claims are not patentable over the art cited by the Examiner. To the contrary, the cancellation of such claims is only, in Applicant's opinion, facilitating expeditious prosecution of allowable subject matter. Applicant respectfully reserves the right to pursue these and other claims in one or more continuations and/or divisional patent applications.

I. Objection to Specification

The examiner has stated that specification was objected to for an informality related to the cross-reference. In response, the specification has been amended to overcome this objection.

II. Objection to Drawings

The examiner has stated that drawings were objected to as because they fail to show item **500** in **Figure 5**. In response, the drawings have been amended to overcome this objection.

III. 35 U.S.C. § 101: Claims 9-17

The examiner has rejected claims 9-17 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

> Claims 9-17 are rejected under 35 U.S.C. 101 because the claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material per se.
>
> Descriptive material can be characterized as either "functional descriptive material" or "non-functional descriptive material." Both types of "descriptive material" are non-statutory when claimed as descriptive material per se, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031,1035 (Fed. Cir. 1994)

> Merely claiming non-functional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86,209 USPQ at 8 (noting that the claims for an algorithm in Benson were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.").

Office Action dated June 14, 2007, pp. 3-4. (Emphasis in original.)

Claims 9-17 are statutory because they recite functional descriptive material that is recorded on a computer readable medium. When functional descriptive material is recorded on a computer-readable medium, such as a recordable-type medium, the functional descriptive material becomes structurally and functionally interrelated to the medium and will be statutory in most cases. Use of technology permits the function of the descriptive material to be realized. MPEP 2106.01.

In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. Id. The MPEP defines a "data structure" as "a physical or logical relationship among data elements, designed to support specific data manipulation functions." Id. Furthermore, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Id. In contrast, "nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data. Id.

Claims 9-17 recites functional descriptive material because claims 9-17 recite a data structure, as defined by the MPEP. First, claims 9-17 recite a data structure comprising a set of instructions. A logical relationship among the data elements in the data structure is present since the instructions operate to receive cache data comprising node identifiers from a set of routers in the system and identify nodes on the system using the cache data. The relationship between the cache data comprising node identifiers and the routers facilitates identifying nodes on the system, and is therefore logical. Second, the relationship between cache data and the routers is designed to support specific data manipulation functions because claim 9 uses the relationship between the cache data and routers to identify nodes on the system using the cache data receive from the routers. Thus, claims 9-17 define a data structure.

Further, the data structure defined in claims 9-17 impart functionality when employed as a computer component. Specifically, claims 9-17 provide the functionality of identifying nodes on the system using identification of nodes sending data packets onto the system in the cache data. Because claims 9-17 impart functionality when employed as a computer component, claims 9-17 recite functional descriptive material.

In addition, the functional descriptive material recited in claims 9-17 are recorded as a set of instructions in memory (e.g., "a memory connected to the bus system, wherein the memory includes a set of instructions"). Thus, the set of instructions comprising functional descriptive material is stored in a computer readable medium. Therefore, because claims 9-17 recite functional descriptive material recorded on a computer readable medium, claims 9-17 recite statutory subject matter.

Accordingly, the rejection of claims 9-17 under 35 U.S.C. § 101 has been overcome.

IV. 35 U.S.C. § 101: Claims 19-20

The examiner has rejected claims 19-20 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

> Claims 19-20 are rejected under 35 U.S.C 101 because the claims fail to place the invention squarely within one statutory class of invention. On page 18, lines 19-30 and page 19, lines 1-7 of the instant specification, applicant has provided evidence that applicant intends the "medium" to include signals. As such, the claim is drawn to a form of energy. Energy is not one of the four categories of invention and therefore this claim(s) is/are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefor not a composition of matter.

Office Action dated June 14, 2007, p. 4.

Claims 19-20 are directed to a computer program product in a computer readable medium. As stated in MPEP 2106.01, "a claimed computer-readable medium with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized" and is statutory. Because claims 19-20 recite a computer program product, along with the other recited steps, claims 19-20 describe a data structure that defines structural and functional interrelationships between the data structure and the computer software and hardware components, which permit the data structure's functionality to be realized. Thus, claims 19-20 recite patentable subject mater under 35 U.S.C. § 101, as explained under MPEP 2106.01.

In addition, claims 19-20 do not recite a signal. Rather, the claims recite a "computer readable medium", in which a signal may be embedded. Claims 19-20 recite functional descriptive material encoded on a computer readable medium and do not claim signals encoded with functional descriptive material. For this reason, claims 19-20 fall under allowable statutory matter under 35 U.S.C. § 101.

Furthermore, claims 19-20 together are statutory subject matter because claims 19-20 are directed towards the medium, and not to the radio frequency or the light wave signals that may inherently be used in such media technologies. The use of radio frequency or light wave transmission as a method of encoding or recording the computer program onto such a medium does not render the medium itself

nonstatutory. Even in the case of a CD-ROM, a laser form of light wave transmission is used for accomplishing the encoding/recording of the information onto the CD-ROM, yet the CD-ROM remains a well-accepted computer readable medium. Encoding the air or glass fiber medium with radio frequency or light wave transmission similarly cannot render the air or glass fiber medium nonstatutory under 35 U.S.C. § 101.

Thus, based on the MPEP, claims 19-20 are statutory under 35 U.S.C. § 101. Accordingly, the rejection of claims 19-20 under 35 U.S.C. § 101 has been overcome.

V. 35 U.S.C. § 102, Anticipation: Claims 1-4, 6-13, and 15-20

The examiner has rejected claims 1-4, 6-13, and 15-20 under 35 U.S.C. § 102 as being anticipated by *Nelson* et al., Method for Locating and Recovering Devices Which Are Connected to the Internet or to an Internet-Connected Network, U.S. Patent Publication No. 2003/0005092 A1 (January 2, 2003) (hereinafter "*Nelson '5092*"). This rejection is respectfully traversed.

The examiner states:

> 9. A data processing system for identifying nodes in a network data processing system, the data processing system comprising: a bus system Par.18; reads on this limitation); a communications unit connected to the bus system (Par. 9; reads on this limitation); a memory connected to the bus system, wherein the memory includes a set of instructions (Par. 49-50); and a processing unit connected to the bus system, wherein the processing unit executes the set of instructions to receive cache data from a set of routers in the data processing system, wherein the cache data includes an identification of the nodes sending data packets onto the network data processing system (Par. 18 & Par. 49-50; reads on this limitation); and identify the nodes on the network data processing system using the cache data from the set of routers (Par. 18 & Par. 49-50; reads on this limitation).

Office Action dated June 14, 2007, page 6-7.

A prior art reference anticipates the claimed invention under 35 U.S.C. §102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). The *Nelson '5092* reference cited by the examiner does not anticipate the present invention as recited in claim 9, because *Nelson '5092* fails to teach each and every element of claim 9. Independent claim 9, which is representative of independent claims 10 and 18 with regard to similarly recited subject matter, reads as follows:

> 9. A data processing system for identifying nodes in a network data processing system, the data processing system comprising:
>
> a bus system;
>
> a communications unit connected to the bus system;
>
> a memory connected to the bus system, wherein the memory includes a set of instructions; and

a processing unit connected to the bus system, wherein the processing unit executes the set of instructions to receive cache data from a set of routers in the data processing system on a periodic basis, wherein the cache data includes an identification of the nodes sending data packets onto the network data processing system; identify the nodes on the network data processing system using the cache data from the set of routers; and generate a display of the nodes in a graphical view comprising communications paths between the nodes with a graphical indication of network traffic volume using the cache data received on a periodic basis, wherein the graphical view includes network traffic volume and node relationships over time.

As disclosed in the Abstract, *Nelson '5092* is directed to a method for locating and recovering network-connected devices. *Nelson '5092* discloses using discovery techniques to discover devices on the network, acquire identifiers of the discovered devices, store information about the discovered devices, and access a database containing information about devices of interest, such as stolen or missing devices. The identifiers are then compared to the database to identify devices of interest among the discovered devices, trace network addresses of the identified devices of interest, and provide information about the identified devices of interest to a party of interest, such as a law enforcement agency or market research data.

Nelson '5092 does not teach a set of instructions which generate a display of the nodes in a graphical view comprising communications paths between the nodes with a graphical indication of network traffic volume using the cache data received on a periodic basis as recited in claim 9 of the present invention. The examiner admits on page 10 of the Office Action dated June 14, 2007 that *Nelson '5092* does not teach this feature. Consequently, *Nelson '5092* does not anticipate claim 9.

However, the examiner points to a second reference, *Nelson '720*, as teaching this feature. The examiner refers to *Nelson '720* in the §103 rejection of claim 14 in view of *Nelson '5092* and *Nelson '720*. As applicants have amended claim 9 to include the language of claim 14, applicants will address the obviousness rejection of amended claim 9 in view of the combination of *Nelson '720* with *Nelson '5092*.

The examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). For an invention to be *prima facie* obvious, the prior art must teach or suggest all claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Contrary to the examiner's assertions, *Nelson '720* does not teach the feature of generating a display of the nodes in a graphical view comprising communications paths between the nodes with a graphical indication of network traffic volume using the cache data received on a periodic basis. The examiner asserts that *Nelson '720* discloses this feature by stating that *Nelson '720* "discloses a graphical user interface (GUI), a network topology database and a Discover program. Running the Discover

program, the network manager seeks out the IP and SNMP-addressable devices on the network, and adds instances of discovered devices to the network topology database." Office Action dated June 14, 2007, page 10. Reference to the graphical user interface (GUI), network topology database, and Discover program is found in the following cited section of *Nelson '720*:

> Also stored on the hard drive **50** is software for directing the network manager **40** to perform its many tasks. The software includes a Graphical User Interface (GUI) **54**, a network topology database **56** and a Discover program **58**. Running the Discover Program **58**, the network manager **40** seeks out IP and SNMP-addressable devices on the network **10**, and adds instances of discovered devices to the network topology database **56**. The Discover program **58** can be distributed on a portable computer memory medium, such as a CD ROM. Distributed as such, the CD ROM is inserted into the CD ROM drive **46** and the Discover program **58** is installed onto the hard drive **50**. Instead of installing the Discover program **58** onto the hard drive 50, however, it can be accessed directly from the CD ROM drive **46**. The Discover program 58 can be run directly from the operating system **52**. The location and name of the Discover program's executable file are typed in at the command line. Specifiers can also be typed in at the command line, or they can be provided in a configuration file. If no specifiers are typed in at the command line, default specifiers are used. The specifiers, which provide options for running and configuring the program, will be discussed below.
>
> In the alternative, the Discover program 58 can be run from the GUI **54**. A Discover program icon is double clicked, causing a Discover Properties dialog box to appear. The Discover Properties dialog box shows the current configuration of the Discover program, provides an option that allows the Discover to be reconfigured with new specifiers, and a button for running the Discover program **58** as currently configured. The GU1 **54** can be created using 20 OpenWindows™ 3.1 or later, or any other library of graphical user interface classes.

Nelson '720, col. 4, line 56 to col. 5, line 21.

The passage above discloses software which directs the network manager to perform various tasks. The software comprises a graphical user interface (GUI), network topology database, and Discover program. The network manager uses the Discover program to seek out IP and SNMP-addressable devices on the network and then add instances of discovered devices to the network topology database. The passage above also discloses that the Discover program may be run directly from the operating system or from the GUI. For instance, if the Discover program is run from the GUI, a user may click the Discover program icon which provides a Discover properties dialog box. The Discover program may be reconfigured using the properties dialog box. The passage above also discloses that the GUI may be created using any library of graphical user interface classes.

In contrast, claim 9 recites a graphical view which displays the nodes identified using the cache data received on a periodic basis from the set of routers, and the communications paths between the nodes with a graphical indication of network traffic volume. Thus, the graphical view in claim 9 displays the nodes identified from the cache data and the communication paths between the nodes, as well as

displaying network traffic volume on the paths. While *Nelson '720* may disclose a graphical user interface, there is no mention in *Nelson '720* that the graphical user interface displays communication paths between identified nodes, nor is there any mention in *Nelson '720* that the graphical user interface displays the volume of network traffic on the communications paths. *Nelson '720* merely mentions using a graphical user interface to run the Discovery program, and that running the Discovery program may include configuring the program properties through a dialog box. Thus, *Nelson '720* fails to teach generating a display of the nodes in a graphical view comprising communications paths between the nodes with a graphical indication of network traffic volume using the cache data received on a periodic basis.

In addition, neither *Nelson '5092* nor *Nelson '720* discloses that the graphical view includes network traffic volume and node relationships over time. As previously mentioned, the examiner states on page 10 of the Office Action dated June 14, 2007 that *Nelson '5092* does not disclose generating a graphical view of the nodes displaying the communications paths between the nodes with a graphical indication of network traffic volume.

Nelson '720 also fails to disclose this feature. The graphical user interface disclosed in *Nelson '720* is used to run the Discovery program. *Nelson '720* discloses that that running the Discovery program through the graphical user interface may include clicking on the Discovery program icon, which causes a Discover properties dialog box to appear. The properties of the Discovery program may be configured through a dialog box. In contrast, the graphical view in claim 9 comprises a display of the network traffic volume and node relationships over time. The display is generated using the cache data received at periodic intervals from the set of routers. Displaying the network traffic volume and node relationships "over time" shows the volume of network traffic at the different intervals, as well as the relationships of the nodes at the different intervals. Consequently, the graphical view illustrating the network traffic volume and node relationships over time allows a user to see the progression of the traffic and relationships in a display. Thus, while *Nelson '720* discloses a graphical user interface, *Nelson '720* makes no mention of a graphical view which includes network traffic volume and node relationships over time. *Nelson '720* does not display network traffic volume or node relationships over time, nor does *Nelson '720* mention any desirability for doing so. Thus, *Nelson '720* fails to teach that the graphical view includes network traffic volume and node relationships over time as recited in claim 9 of the present invention.

Furthermore, the examiner states that it would have been obvious to one of ordinary skill in the art, having the teachings of *Nelson '5092* and *Nelson '720* before him or her to modify the table walk technique of *Nelson '5092*, to include a graphical display of the network topology and a graphical indication of the network traffic because it would portray the recursive process, of the "table walk"

technique, more thoroughly. Office Action dated June 14, 2007 page 10. The examiner further states that *Nelson '5092* makes such a suggestion for modifying the table walk technique in paragraph 50, lines 14-15 which discloses that any of the discovery techniques discussed *Nelson '5092* could be used in conjunction with other discovery techniques. Office Action dated June 14, 2007 page 11. However, the "discovery techniques" in *Nelson '5092* merely refer to discovering devices of interest on the Internet. *Nelson '5092* gives specific examples of such other discover techniques, and states: "For example, Microsoft's Corporation's AutoDiscovery technology uses SNMP or Ping, or searches ARP caches, as a method for discovering devices on an enterprise network, specific networks or IP addresses, or a range of IP addresses. Thus, while *Nelson '5092* discloses that multiple discovery techniques may be used to identify devices on the Internet, it would not have been obvious to one of ordinary skill in the art, having the teachings of *Nelson '5092* and *Nelson '720* before him or her, to modify the table walk technique of *Nelson '5092* to include a display of the nodes in a graphical view comprising communications paths between the nodes with a graphical indication of network traffic volume using the cache data received on a periodic basis, wherein the graphical view includes network traffic volume and node relationships over time.

Consequently, it is respectfully urged that the rejection of claims 9, 10, and 18 has been overcome.

Since claims 11-17 and claim 21 depend from claim 10, and claims 19-20 depend from claim 18, the same distinctions between *Nelson '5092* and *Nelson '720* and the claimed invention in claims 11-17 and 19-21 apply for these dependent claims. Furthermore, these dependent claims include additional features not found in the cited reference.

For example, claim 14 now recites wherein the cache data received on the periodic basis is used to validate service level agreement compliance. Neither *Nelson '5092* nor *Nelson '720* mentions anything about service level agreements, or of using the cache data to validate the agreements. Consequently, neither *Nelson '5092* nor *Nelson '720* teaches that the cache data received on the periodic basis is used to validate service level agreement compliance. In addition, new claim 21 recites wherein the graphical indication comprises network connections of different thicknesses to indicate network traffic volume. As the examiner has stated that *Nelson '5092* does not disclose the graphical view in claim 10, and as *Nelson '720* has been shown not to teach a graphical view comprising connection paths between identified nodes, neither *Nelson '5092* nor *Nelson '720* teaches that the graphical indication indicates network traffic volume using network connections of different thicknesses. Thus, both *Nelson '5092* and *Nelson '720* also fail to teach this feature.

As claims 1-8 have been canceled, the rejection of these claims is now moot.

Therefore, the rejection of claims 1-4, 6-13, and 15-20 under 35 U.S.C. § 102 has been overcome.

VI. 35 U.S.C. § 103, Obviousness: Claims 5 and 14

The examiner has rejected claims 5 and 14 under 35 U.S.C. § 103 as being unpatentable over *Nelson '5092* in view of *Nelson* et al., IP Discovery Apparatus and Method, U.S. Patent No. 5,835,720 (November 10, 1998) (hereinafter "*Nelson '720*"). This rejection is respectfully traversed.

The examiner states:

> 8. Claims 5 & 14 are rejected under 35 U.S.C. 103(a) as being obvious over Nelson et al. U.S. Publication No.: 2003/0005092 A1 in view of Nelson et al. Patent No.: 5,835,720.
>
> Nelson discloses, in U.S. Publication No.: 2003/0005092 A1, the elements of claims 1-4 & 6-13 & 15-20, namely the receiving the cache data, tracking transactions for a set of nodes, the ARP, where the receiving the cache data at periodic intervals, analyzing the usage of each node, and selectively load balancing.
>
> Nelson discloses, in U.S. Publication No.: 2003/0005092 Al, does not appear to explicitly disclose generating a display of the set of known nodes in a graphical view, wherein the graphical view includes the communications paths with a graphical indication of the network traffic.
>
> However, Nelson et al (in Patent No.: 5,835,720) discloses a graphical user interface (GUI), a network topology database and a Discover program. Running the Discover program, the network manager seeks out the IP and SNMP-addressable devices on the network, and adds instances of discovered devices to the network topology database.
>
> At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Nelson et al. (Pub. No.: 2003/0005092 Al) and Nelson et al. (Pat. No.: 5,835,720) before him or her to modify the "table walk" technique of Nelson et al. (Pub. No.: 2003/0005092 Al) to include a graphical display of the network topology and a graphical indication of the network traffic because it would portray the recursive process, of the "table walk" technique, more thoroughly.
>
> The suggestion for doing so would have been where Nelson et al. (Pub. No.: 2003/0005092 A1) mentions (Par. 50, lines 14-1 5) that any of the discovery techniques he discussed could be used in conjunction with other discovery techniques.
> Therefore, it would have been obvious to combine Nelson et al. (Pub. No.: 2003/0005092 Al) with Nelson et. Al. (Pat. No.: 5,835,720) to obtain the invention as specified in the instant claims.

Office Action dated June 14, 2007, pp. 10-11.

As claim 5 has been canceled, the rejection of this claim is now moot.

With regard to claim 14, applicants have amended claim 10 to include the features of claim 14. Consequently, applicants have addressed the §103 rejection of claim 14 in the response to the rejection of claims 1-4, 6-13, and 15-20 in section V above.

In view of the above, the rejection of claims 5 and 14 under 35 U.S.C. § 103 has been overcome.

VII. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance.

The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: September 12, 2007

Respectfully submitted,

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